RECORDS OF WESTERN SMALL-FOOTED MYOTIS IN CENTRAL SOUTH DAKOTA -- Western small-footed myotis (*Myotis ciliolabrum*) occurs in suitable habitat throughout much of the western United States, from the Badlands and Black Hills of South Dakota, west to the Pacific coastal plain, and from southwestern Canada to northern and central Mexico (Holloway and Barclay 2001). Previous research indicates that this species is primarily found in the Badlands and Black Hills of South Dakota (Jones and Genoways 1967; unpublished voucher specimens in the South Dakota State University Natural History Collection). While Jones and Genoways (1967) speculated on occurrence of *M. ciliolabrum* along eastward-flowing rivers in South Dakota, including the Missouri River, there was no evidence to substantiate this speculation until a single adult male *M. ciliolabrum* was shot and collected near the Missouri River at Farm Island Recreation Area, Hughes County, South Dakota (approximately 4 km south, 6.5 km east of Pierre) 2 July 1975 by Hugh H. Genoways as part of a mammal survey. The specimen was not reported in the literature, but was deposited in the mammal collection at Texas Tech University (TK 926721). An additional record of this species in central South Dakota was documented by Swier (2003, 2006), who reported two acoustic recordings of this species at Farm Island Recreational Area on 25 July 2002. The nearest record of *M. ciliolabrum* was collected from Philip, Haakon County, South Dakota, approximately 135 km west of Farm Island Recreational Area (SDSU-NHC 234, museum specimen collected by Ernest J. Huggins on 6 June 1956). To my knowledge, accounts of this species have not been reported previously in central South Dakota.

I captured bats by using mist nets at Oahe Downstream Recreation Area, Stanley County, South Dakota (5.3 km west, 7 km north of Pierre) during the 2005 and 2006 field seasons (April to October; Bales and Ke 2007, Bales 2007). This site was downstream of the Missouri River's Oahe Dam and consists of riparian gallery forest dominated by plains cottonwoods (*Populus deltoides monilifera*). Bluffs and rock crevices along the Missouri River were situated approximately 730 m from the netting site. Total effort at the area was 237.3 net-hours or 56 net nights. A total of 45 bats representing six species were captured at this location: *Eptesicus fuscus* (n = 1), *Lasiurus borealis* (n = 2), *Lasionycteris noctivagans* (n = 1), *Myotis septentrionalis* (n = 36), *M. lucifugus* (n =4), and *M. ciliolabrum* (n = 1).

On 20 July 2006, I captured a single non-scrotal adult male *M. ciliolabrum* at 2350 hr at Oahe Downstream Recreation Area. The individual was in good health and lacked noticeable ectoparasites, as appears to be typical for this species (Dooley et al. 1976). Morphometric data measured from this individual (mass 5.6 g, keeled calcar, total length 84 mm, tail length 32 mm, forearm length 34 mm, ear length 13 mm, and hind-foot length 6 mm) are consistent with the range of measurements previously reported for this species (Holloway and Barclay 2001). I verified species identification by using two keys (van Zyll de Jong 1985, Adams

2003) and determined sex and reproductive status by visual inspection (Racey 1988); age was determined by epiphyseal ossification of the metacarpals (Anthony 1988). I retained the individual for 43 hours to confirm species identification and to obtain documentation with photographs, during which time the animal was housed and provided food and water by hand. Species documentation was cataloged in the South Dakota State University Natural History Collections (SDSU-NHC 2091) and the Museum of Texas Tech University (TK 145309, TTU-M 88965). Animal care and handling protocols used in this research were approved by the Institutional Animal Care and Use Committee at South Dakota State University (SDSU; Approval number 05-A007).

Prior to release on 22 July 2006 at 1900 hr, I fitted the individual with a blue anodized aluminum wing band (serial number SDGFP 05369) and Holohil Systems Ltd. LB-2N radio-transmitter (0.36 g, 12-day lifespan). However, due to weather and logistical constraints, radio-tracking was initiated on 25 July 2006 at 1800 hr. I radio tracked the individual to a location under the bark of a dead limb of a plains cottonwood having a DBH of 56 cm. The bat began foraging at approximately 2158 hr and no other bats were observed roosting in or leaving the tree; I lost radio contact shortly thereafter possibly due to limited range of the transmitter. The radio signal was reacquired two hours later and the bat was located night-roosting in a different plains cottonwood at 0030 hr on 26 July 2006 (DBH = 69 cm) approximately 160 m southwest of its previous day-roost (25 July 2006). On 28 July 2006, I was unable to locate the bat; however I located the individual on 30 July 2006 day-roosting in the same location as on 25 July 2006. I lost the signal shortly after the animal began foraging at approximately 2200 hr and the signal was not reacquired that night. I unsuccessfully attempted to reacquire the telemetry signal on 1-2 August 2006. After 3 August 2006, I assumed the loss of battery/transmitter function and terminated efforts to relocate this individual.

Only five bat studies (Findley 1956, Jones and Genoways 1967, Lane et. al 2003, Swier 2003, 2006, Bales and Ke 2007, Bales 2007), have been conducted in central and eastern South Dakota; an area including all land in South Dakota east of approximately W 101° longitude. Of these studies, two (Swier 2003, 2006, Bales 2007, Bales and Ke 2007) conducted fieldwork in central South Dakota and additional unpublished fieldwork by Hugh H. Genoways was conducted in 1975; all three studies recorded presence of *M. ciliolabrum* in South Dakota. Dates when *M. ciliolabrum* has been detected or captured (two adult males) in central South Dakota (all in July) suggests that presence of this species was not associated with known spring or fall migration activity, natal dispersal, or reproductive behavior. Therefore, it is possible that there might exist a relatively small summer resident population of *M. ciliolabrum* along the Missouri River in South Dakota and along eastward-flowing rivers in western South Dakota that provide adequate habitat as was hypothesized by Jones and Genoways (1967). *Myotis ciliolabrum* occurs in riparian areas (Holloway and Barclay, 2000) and can use a variety of potential roost

sites including rock crevices (Tuttle and Heaney 1974), abandoned swallow nests (Merriam 1886), buildings (Jones 1964), and under loose bark (Jones 1964), all of which are available in this region. This record might represent abnormal migratory behavior or a range extension for *M. ciliolabrum*, or might simply reflect an increase in bat survey/research efforts in this area.

Limited occurrences of *M. ciliolabrum* in central South Dakota are either due to low population levels or possibly low catchability rates (Bales 2007, Swier 2003, 2006). South Dakota's open spaces and high winds increases detectability of mist nets (i.e., easier to perceive) by echolocation of bats and likely contributed to the difficulties conducting fieldwork and limited bat research in these areas (Bales 2007, Swier 2003). Of 104 bats captured during the 2000-2002 field seasons by Swier (2003, 2006) in central (n = 52) and eastern (n = 52) South Dakota, no *M. ciliolabrum* was captured. The single capture of *M. ciliolabrum* reported herein was one of 163 bats captured during the 2005 and 2006 field seasons in 253 net nights at various locations along the lower Missouri River, and might be an indication of the difficulty of capture or limited occurrence of *M. ciliolabrum* in this region (Bales 2007). Future bat research and surveys should include substantial sampling effort (Bales 2007, Bales and Ke 2007) and use of harp traps in addition to mist nets. *Myotis ciliolabrum* currently is not listed as a species of concern by the South Dakota Natural Heritage Program (SDNHP). However, in light of increasing wind power development and lack of knowledge of occurrence and distribution of this species throughout South Dakota, consideration as a species of concern might be warranted.

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